

# **EXHIBIT 13**

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
26 July 2007 (26.07.2007)

PCT

(10) International Publication Number  
**WO 2007/084661 A3**

(51) International Patent Classification:  
A61K 31/715 (2006.01)

(21) International Application Number:  
PCT/US2007/001427

(22) International Filing Date: 17 January 2007 (17.01.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
11/334,763 17 January 2006 (17.01.2006) US

(71) Applicants (for all designated States except US):  
**SLOAN-KETTERING INSTITUTE FOR CANCER RESEARCH** [US/US]; 1275 York Avenue, New York, NY 10021 (US). **BIOTEC PHARMACON ASA** [NO/NO]; Strandgata 3, N-9008 Tromsø (NO).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **ENGSTAD, Rolf, Einar** [NO/NO]; Sørliveien 16, N-9018 Tromsø (NO).

(74) Agent: **CHAN, Albert, Wai-Kit**; Law Offices of Albert Wai-Kit Chan, LLC, World Plaza, Suite 604, 141-07 20th Avenue, Whitestone, NY 11357 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS,

LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- of inventorship (Rule 4.17(iv))

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- the filing date of the international application is within two months from the date of expiration of the priority period

(88) Date of publication of the international search report:  
8 November 2007

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: THERAPY-ENHANCING GLUCAN

(57) Abstract: A therapeutic composition for treatment of cancer in a mammal is disclosed. The composition comprises an effective amount of a yeast beta-glucan composition which is suitable for oral administration and for absorption through the gastrointestinal tract of the mammal. The above therapeutic composition may further comprise antitumor antibodies or cancer vaccine composition, wherein the antitumor activities of the antitumor antibodies or the cancer vaccine composition are enhanced by the yeast glucan.



WO 2007/084661 A3

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/01427

## A. CLASSIFICATION OF SUBJECT MATTER

IPC: A61K 31/715( 2006.01)

USPC: 424/54

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/54

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EAST, STN Easy (seach terms: yeast glucan, monoclonal antibod\$, cancer)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,130,127 A (HERLYN et al) 19 June 1978 (19.06.78), column 2, lines 37-38; abstract.	claims 1-3,6-14
Y	US5,849,720 A (JAMAS et al.) 15 December 1998(15.12.1998) column 1, lines 34-52.	1-3,6-14
X	US 2006/0009419 A1 (ROSS et al.) 12 January 2006 (12.01.2006), entire document, especially pages 3, 5, 10, 12, 13 and 22.	1-3,6-22,26
---		-----
Y		9-17
Y	US 5,696,079 (LANE et al.) 9 December 1997 (09.01.1997), abstract.	13
Y	US 5,726,023 (CHEEVER et al.) 10 March 1998 (10.03.1998), abstract.	13



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:		"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search  
23 July 2007 (23.07.2007)

Date of mailing of the international search report

26 SEP 2007

Name and mailing address of the ISA/US  
Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
Facsimile No. (571) 273-3201

Authorized officer

Maury Audet

Telephone No. 571-272-1600

*Janice Ford for*

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/01427

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☒ Claims Nos.: 4-5,23-25,27  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

- Remark on Protest**
- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
  - ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
  - ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US07/01427

## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	YAN et al. B-Glucan, a "specific" biologic response modifier that uses antibodies to target tumor for cytotoxic recognition by Leukocyte complement receptor type 3 (CD11b/CD18) The Journal of Immunology 1999, Vol 163, pages 3045-3052, entire document, especially pages 3046, 3050 and 3051.	1-3 and 6-17 ----- 1-3 and 6-17
Y	MENDELSON, J. Epidermal growth factor receptor inhibition by a monoclonal antibody as anticancer therapy. Clinical Cancer Research December 1997, Vol 3, 2703-2707, see abstract.	13
Y	HELLSTOM et al. Antitumor effects of L6, an IgG2a antibody that reacts with most human carcinomas. Proc. Natl. Acad. Sci. USA, September 1986, Vol 83, pages 7059-7063, see abstract.	13
Y	RAI and GUPTA. Monoclonal antibodies in chronic lymphocytic leukemia. Reviews in Clinical and Experimental Hematology 2000, Vol 4, No. 2, 134-144, see abstract.	13
Y	HERRERA et al. Immunotoxins against CD19 and CD22 are effective in killing precursor-B acute lymphoblastic leukemia cells in vitro. Leukemia 2000, Vol 14, No. 5, pages 853-858, see abstract.	13